

# User's ▶▶▶▶▶▶▶▶ manual

## Mini Wireless 802.11b USB Adapter

HWU300



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## **FCC Warning**

**This equipment has been tested and found to comply with the regulations for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.**

**CE Mark Warning**

***This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.***

### **IMPORTANT NOTE:**

#### **FCC Radiation Exposure Statement:**

**This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.**

**This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.**

## **LIMITED WARRANTY**

**Hawking Technology guarantees that every H-WU300 Mini Wireless USB Adapter is free from physical defects in material and workman ship under normal use for two (2) years from the date of purchase. If the product proves defective during this two-year warranty period, call Hawking Customer Service in order to obtain a Return Authorization number. Warranty is for repair or replacement only. Hawking Technology does not issue any refunds. BE SURE TO HAVE YOUR PROOF OF PURCHASE. RETURN REQUESTS CAN NOT BE PROCESSED WITHOUT PROOF OF PURCHASE. When returning a product, mark the Return Authorization number clearly on the outside of the package and include your original proof of purchase. IN NO EVEN SHALL HAWKING TECHNOLOGY'S LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT FROM DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT, ITS ACCOMPANYING SOFTWARE OR ITS DOCUMENTATION. Hawking Technology makes no warranty or representation, expressed, implied or statutory, with respect to its products or the contents or use of this documentation and all accompanying software, and specifically disclaims its quality, performance, merchantability, or fitness for any particular purpose. Hawking Technology reserves the right to revise or updates its products, software, or documentation without obligation to notify any individual or entity. Please direct all inquiries to:**  
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# **1 Introduction**

Thank you for purchasing the Hawking Wireless LAN Mini USB Adapter. This USB Adapter is designed to comply with IEEE 802.11b Wireless LAN standard and easy to carry with the Mini size. It is suitable for any Laptop or Desktop computers. It also supports Windows OS Plug & Play installation and USB Hot Swap, allowing you to plug it in or remove it without rebooting your computer.

## **1.1 Features**

- Complies with the IEEE 802.11b 2.4GHz (DSSS) standard.
- High data transfer rate - up to 11Mbps.
- Supports 64/128-bit WEP Data Encryption function for high level of security.
- Supports peer-to-peer communication among any wireless users, no Access Point required.
- Automatic fallback increases data security and reliability.
- Supports the most popular operating system: Windows 98SE/Me/2000/XP.
- Portable and mini-size design.
- Suitable for Any Note book or Desktop PC.

## **1.2 Specifications**

- Standard: IEEE 802.11b
- Bus Type: USB Type A
- Frequency Band: 2.4000~2.4835GHz (Industrial Scientific Medical Band)
- Modulation: CCK@11/5.5Mbps, QPSK@2Mbps, BPSK@1Mbps
- Radio Technology: Direct Sequence Spread Spectrum (DSSS)
- Data Rate: 11/5.5/2/1Mbps auto fallback
- Security: 64/128-bit WEP Encryption
- Antenna: Internal Antenna
- Drivers: Windows 98SE/Me/2000/XP
- LEDs: Link, Activity
- Transmit Power: 16dBm
- Dimension: 9(H) x 27(W) x 84(D)
- Temperature: 32~131°F (0 ~55°C)
- Humidity: 0-95% (NonCondensing)
- Certification: FCC, CE

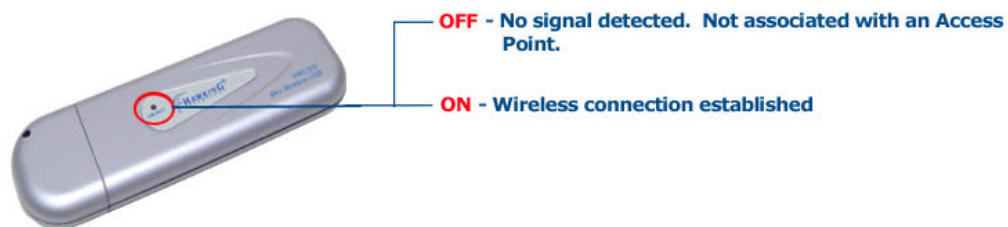
### 1.3 Package Contents

Before you begin the installation, please check the items of your package. The package should include the following items:

- One USB Adapter
- One USB Extension Cable (100Cm)
- One Quick Guide
- One CD (Driver/Utility/Manual)

*If any of the above items is missing, contact your supplier as soon as possible.*

### 1.4 LED Description



### 1.5 Wireless Networking Scenarios

As our 802.11b WLAN USB Adapter is interoperable and compatible with other IEEE 802.11b compliant products from other manufacturers, it offers you the most freedom to establish your ideal wireless network. Therefore, after installing 802.11b WLAN USB Adapter, you can connect your computer to:

- a. A Peer-to-Peer Workgroup of IEEE802.11b compliant wireless devices.
- b. A LAN (Local Area Network) constructed by Access Point(s) or other IEEE802.11b compliant systems.
- c. Share your Internet access by using just one connection, share printers and other peripheral devices, share data and image files between networked PCs, play multi-player games, and use other network enabled sharing resources.

**A. Peer-to-Peer Networking:**

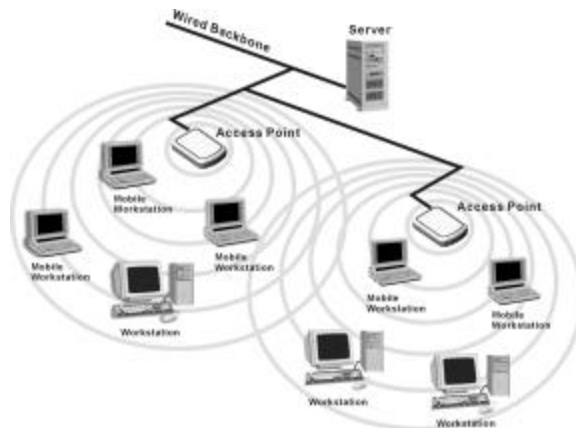
An Ad Hoc Network could be easily set up with some PCs and this 802.11b WLAN USB Adapter or our other WLAN devices. Therefore, it is very suitable to build a network for temporary use, such as for demonstration in exhibition, for new sales point/branch use and alike.



**B. Cooperate LAN (Local Area Networking):**

With some 802.11b WLAN USB Adapters and Access Points, it is easy to construct a LAN with access to the Internet for corporate/business use. The construction is quite easy, the 802.11b WLAN USB Adapter and Access Point will automatically work at the most suitable frequency when your Access Point is correctly configured.

In addition, most manufacturers will bundle the Site-Survey tool for users to check their connection strength and quality.



## 2 Installation Procedure

### 2.1 Windows 98SE/Me/2000

Before you proceed with the installation, please notice following descriptions.

**Note1:** *The following installation was operated under Windows 2000. (Procedures will be the same for Windows 98SE/Me.)*

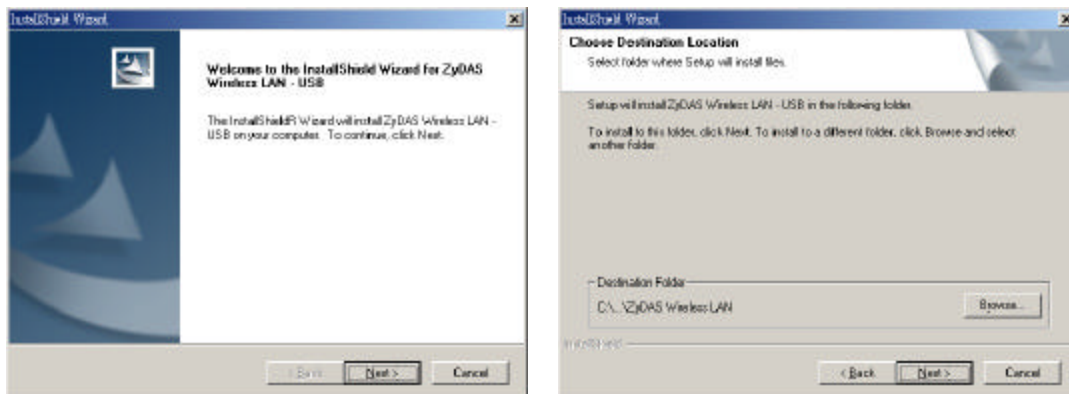
**Note2:** *If you have installed the Wireless USB Adapter driver & utility before, please uninstall the old version first.*

#### 2.1.1 Install the Driver

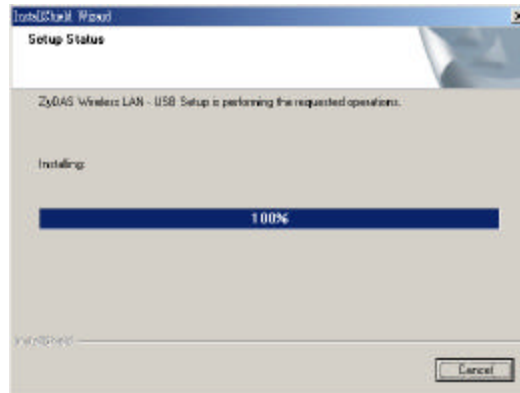
1. Insert the USB Adapter into the USB port of your computer, the system will automatically find the device and search for its driver.
2. Please select the "Driver\Win2000" folder (select the folder based on your computer's OS system, ie. If you are using Windows 98 select "Driver\Win98") and the system will complete the driver installation.

#### 2.1.2 Install the Utility

1. Insert the CD into the CD-ROM device and select the Wireless Utility tab from the menu. If the menu page does not automatically appear click on your MY COMPUTER icon and double click your CD-Rom Icon. After selecting the Wireless Utility tab from the menu the InstallShield Wizard box will appear, click "Next" to continue.
2. The "Choose Destination Location" screen will show you the default destination chosen by the program. If you want to install the utility in another location, click the "Browse" button and select an alternate destination. When you are ready to continue, click the "Next" button.
3. The program will finish the installation automatically.







4. After completing the Utility installation, please execute the “ZDConfig” program (click “Start” button and select “ZyDAS Wireless LAN – USB”) to start using the WLAN USB Adapter.

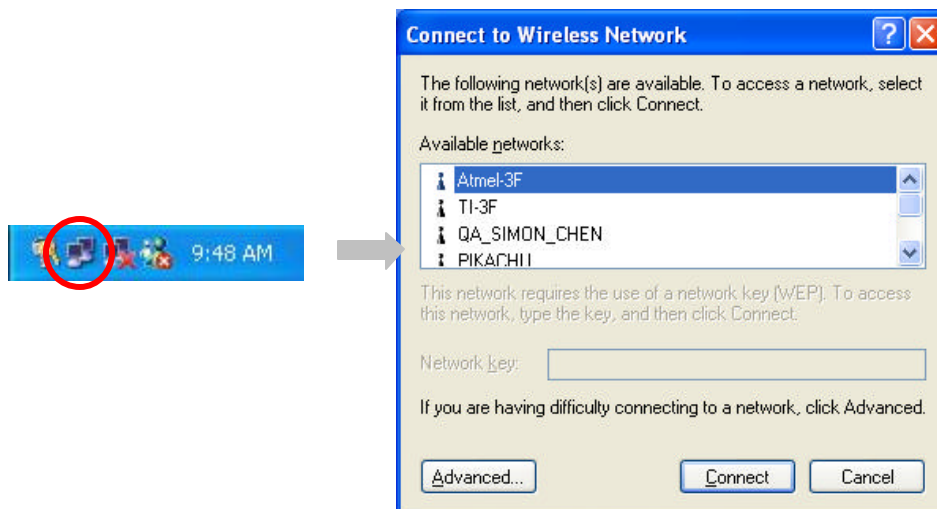
## 2.2 Windows XP

The installation process in Windows XP is similar with the process in windows 98SE/Me/2000. Please refer to the instructions described in section 2.1.

Windows XP has a built-in wireless network utility which you may use or you may use the provided Hawking/Zydas Wireless Utility. **It is strongly recommended that you use the utility provided with this adapter to obtain full functionality.**

### A. Using Windows XP's Utility

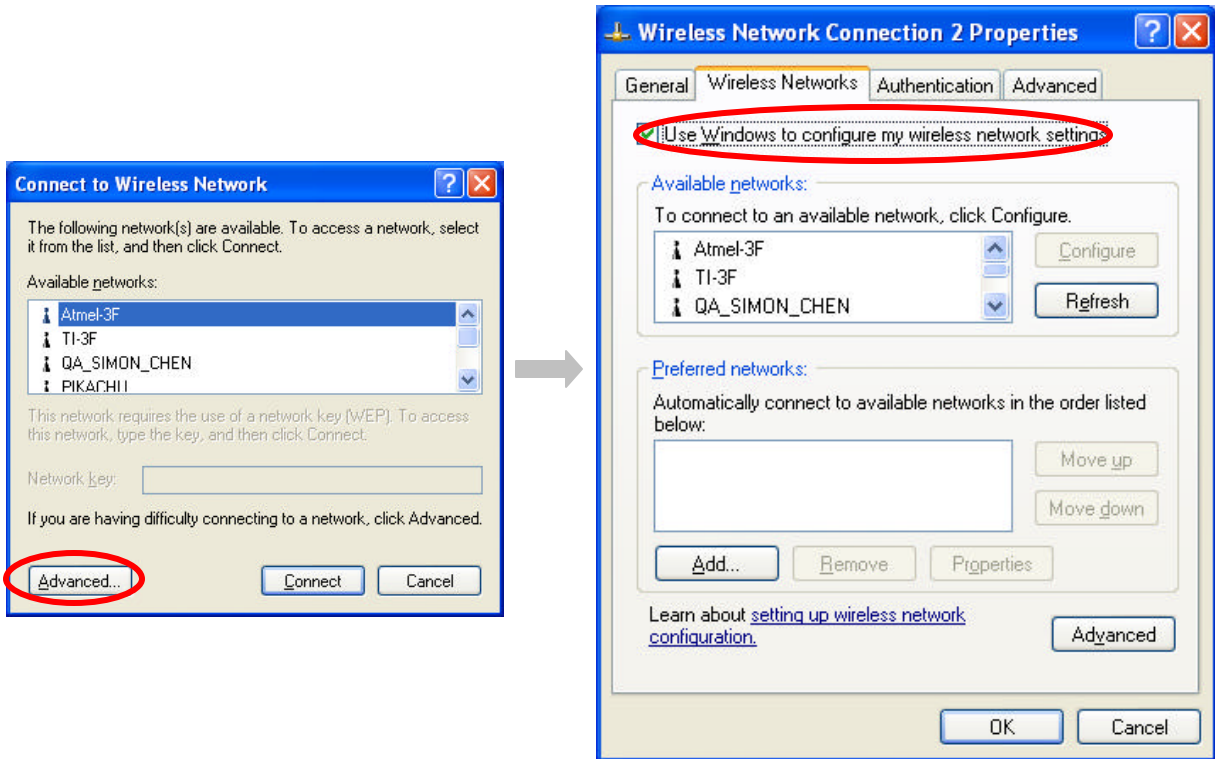
Click the icon circled in red below which is located in the taskbar to start using the Windows XP Wireless Configuration Utility.



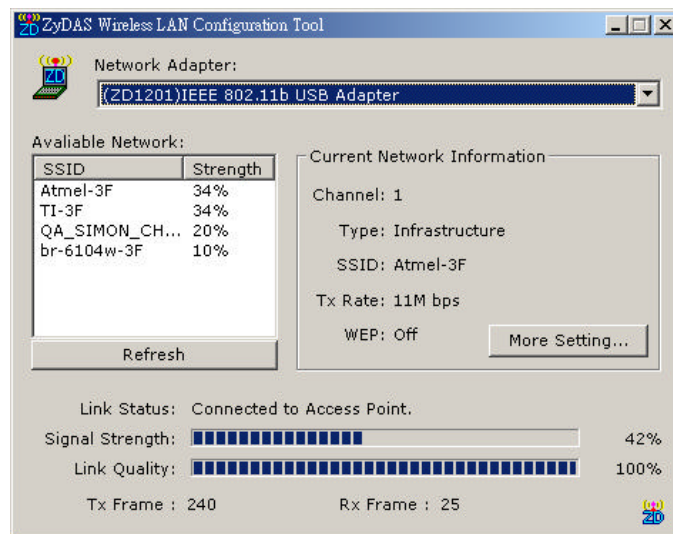
### B. Using the Utility provided with this adapter

1. To use the Hawking/Zydas Wireless Utility you will have to first shut off the Windows Wireless Utility. To do this open the Windows Utility and click the “Advanced” button.

- In the "Wireless Network Connection Properties" screen, uncheck the setting "Use Windows to configure my wireless network settings". Note\* If you wish to change back to the Windows XP built-in utility, check the item again.



- Execute "ZDConfig" program (click "Start" button and select "ZyDAS Wireless LAN – USB").



**Note:** If you don't disable the XP's Utility, you can only see the link status during communication process from the USB Adapter's utility.

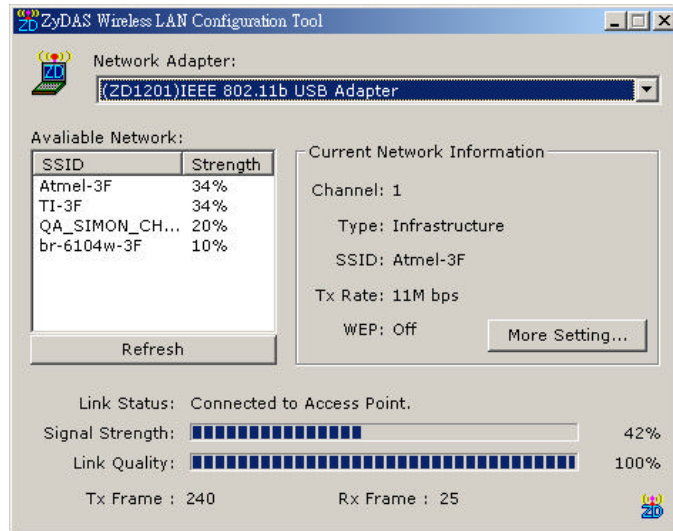
## 3 Configuration Utility

The Configuration Utility is a powerful application that helps you configure the Wireless LAN Mini USB Adapter and monitor the link status during an established connection.

This utility can be used to change the following configuration parameters while the device is active.

### 3.1 Wireless Connection

The “**ZyDAS Wireless LAN Configuration Tool**”, gives you information regarding your current link status as well as a listing of other detected wireless networks in your area.



Here is a list of descriptions of what each parameter does

Function	Description
Network Adapter	Display the product information of the USB Adapter.
Available Network	<p>Displays all the SSID 's (Wireless Network ID's) detected in your area and the Signal Strength of wireless devices nearby. To re-survey the available wireless devices please click the "Refresh" button.</p> <p>There are two ways to automatically make the connection between the USB Adapter and the wireless device on the list.</p> <ol style="list-style-type: none"><li>1. Double-click the wireless network ID on the list to connect the device directly.</li><li>2. Click the device you intend to connect to and press "Connect this site" button.</li></ol>
Current Network Information	Displays the information about the wireless network this adapter is currently connecting to. The information includes Channel, Type, SSID, TX Rate and WEP settings. Note: Please refer to Section 3.2. for the description of each item.

Parameter	Description
More Setting button	Press this button for more settings including disable/enable WEP and Power Saving Mode. Please refer to Section 3.2, 3.3 and 3.4.
Link Status	Displays the status of the wireless connection.
Signal Strength	This bar shows the signal strength level. The higher percentage shown in the bar, the stronger the radio signal received by the adapter will be. This indicator helps you find the optimal position and location of your network for the best connection.
Link Quality	This bar indicates the quality of the link. The higher the percentage, the better the quality. (Less Noise, Interference)
TX Frame	Shows the number of data frames that are transmitted by the adapter successfully.
RX Frame	Shows the number of data frames that are received by the adapter successfully.

## 3.2 General Connection Setting

In the “**More Setting...**” screen, users are able to designate which wireless networks that the adapter intends to connect to. In this section you may also enable/disable WEP data encryption (Security, Highly Recommended), and save or load current setting values into/from a file, etc. for future use.

The screenshot shows the 'More Setting...' dialog box with the following sections and controls:

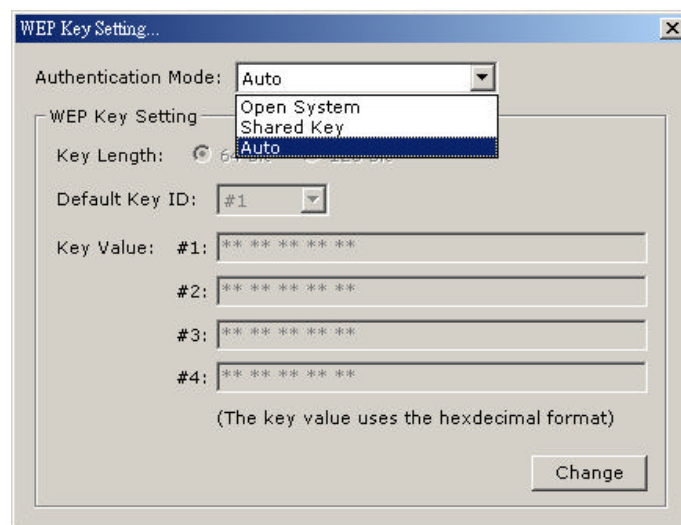
- General Connection Setting:**
  - Channel: 11 (dropdown)
  - TxRate: Auto (dropdown)
  - SSID: (text field) with a checkbox labeled 'any' checked.
  - Network type: Infrastructure (dropdown)
  - Apply button
- Encryption Setting:**
  - Enable WEP: (checkbox, unchecked)
  - Press the button for more WEP key setting. WEP More... button
- Profile:**
  - Profile name: (text field)
  - Load profile setting. button
  - Write current setting to profile. button
  - Load factory default setting. button
- Other:**
  - For more advanced setting, information...
  - Advanced Setting... button
  - Information button

Parameter	Description
<b>General Connection Setting</b>	
Channel	Selects the number of the radio channel you wish to use for your wireless network. The channel setting of the wireless stations within the same network should be the same.
TxRate	Selects the basic transmit rate to be used: 11, 5.5, 2 or 1Mbps. If "Auto" is selected, the adapter will automatically adjust to the highest possible rate according to the interference or obstacles.
SSID	<p>The SSID (up to 32 printable ASCII characters) is the unique name identified in a WLAN. The ID prevents the unintentional merging of two co-located WLANs.</p> <p>You may specify a SSID for the adapter and then only the device with the same SSID can interconnect to the adapter.</p>
Any	If "Any" check box is enabled, the adapter will survey and connect to one of the available wireless stations without checking the consistency of channel and SSID with the wireless station.
Network Type	<ul style="list-style-type: none"> <li>● <b>Infrastructure:</b> This mode requires the presence of an AP or Router to create a wireless network. All the communication is processed through the AP or Router.</li> <li>● <b>Ad Hoc:</b> This mode enables wireless network adapters to connect without the use of an AP or Router. Select this mode if there is no AP or Router in the network. Peer to Peer networking.</li> </ul>
Change button	The change button will enable you to set the parameters of "General Connection Setting". In the meantime, the button will change to "Apply" button for you to confirm your settings.
Encryption Setting	In this window, users may setup the WEP key for the data encryption within the network. Please refer to Section 3.3 for a more detailed description.
<b>Profile</b>	
Profile Name	This area depicts the names of saved Profile Names. A Profile is a previously saved wireless setting. This makes it convenient for frequent changes in wireless networks.
Load profile setting	In this tab you can load the previously saved Profile names and retain your wireless settings
Write current setting to Profile	This setting saves a new Profile

Parameter	Description
Load factory default setting	To restore to factory default, please press this button. The default values are as follows. Channel: 6 TxRate: Auto SSID: Any Network Type: Infrastructure
Other	
Advanced Setting... button	For more advanced setting, please press this button. To know more of the settings, please refer to Section 3.4.
Information button	To view the version of the driver, firmware and the MAC Address of the adapter, press this button.

### 3.3 WEP Encryption

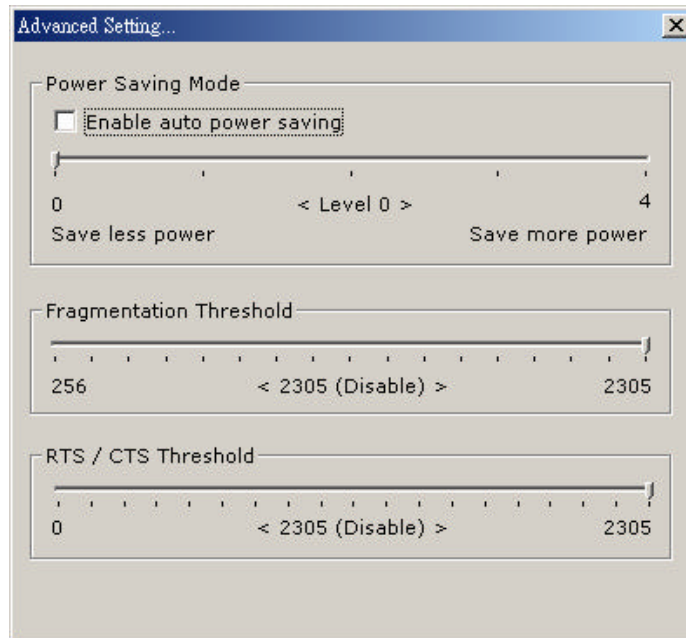
WEP is an authentication algorithm , which protects authorized Wireless LAN users against eavesdropping and network intruders . The Authentication type and WEP key must be the same on the wireless stations within the network. This adapter supports 64/128-bit WEP Encryption function. With this function, your data will be transmitted over the Wireless network securely.



Parameter	Description
Authentication Mode	<p>This setting has to be consistent with the wireless stations which the adapter intends to connect to.</p> <ul style="list-style-type: none"> <li>● <b>Open System</b> – No authentication is needed among the wireless stations.</li> <li>● <b>Shared Key</b> – Only wireless stations using a shared key (WEP Key identified) are able to connect to one another. You must have the SAME WEP KEY for every wireless device on your network.</li> <li>● <b>Auto</b> – Auto switch the authentication algorithm depending on the wireless stations which the adapter is connecting to.</li> </ul>
Key Length	<p>You may select the 64-bit or 128-bit to encrypt transmitted data. Larger key length will provide higher level of security, but the throughput/network speed will be lower.</p>
Default Key ID	<p>Select one of the keys (1~4) as the encryption key.</p>
Key1 ~ Key4	<p>The keys are used to encrypt data transmitted in the wireless network. Fill the text box by following the rules below.</p> <ul style="list-style-type: none"> <li>● <b>64-bit</b> – Input 10 digit Hex values (in the “A-F”, “a-f” and “0-9” range) as the encryption keys. For example: “0123456aef”.</li> <li>● <b>128-bit</b> – Input 26 digit Hex values (in the “A-F”, “a-f” and “0-9” range) as the encryption keys. For example: “01234567890123456789abcdef”.</li> </ul>

### 3.4 Advanced Setting

The “**Advanced Setting**” allows user to enable/disable power saving mode, setup the fragmentation threshold and RTS/CTS threshold of the adapter.



Parameter	Description
Power Saving Mode	
Enable auto power saving	Check the check box to enable power saving mode. You may control the power consumption of the adapter by adjusting the save power level from 1 to 4. The higher power save level selected, the lower power used. Note that lower power is supplied may slow down the transmission rate of the adapter.
Fragmentation Threshold	This value defines the maximum size of packets, any packet size larger than the value will be fragmented. If you have decreased this value and experience high packet error rates, you can increase it again, but it will likely decrease overall network performance. Select a setting within a range of 256 to 2305 bytes. Minor change is recommended.
RTS / CTS Threshold	Minimum packet size required for an RTS/CTS (Request To Send/Clear to Send). For packets smaller than this threshold, an RTS/CTS is not sent and the packet is transmitted directly to the WLAN. Select a setting within a range of 0 to 2305 bytes. Minor change is recommended



## **4 Troubleshooting**

This chapter provides solutions to problems usually encountered during the installation and operation of the adapter.

### **1. What is the IEEE 802.11b standard?**

The IEEE 802.11b Wireless LAN standard subcommittee formulates the standard for the wireless industry. The objective is to enable wireless LAN hardware from different manufactures to communicate.

### **2. What does IEEE 802.11 feature support?**

The product supports the following IEEE 802.11 functions:

- CSMA/CA plus Acknowledge Protocol
- Multi-Channel Roaming
- Automatic Rate Selection
- RTS/CTS Feature
- Fragmentation
- Power Management

### **3. What is Ad-hoc?**

An Ad-hoc integrated wireless LAN is a group of computers, each has a Wireless LAN adapter, Connected as an independent wireless LAN. Ad hoc wireless LAN is applicable at a departmental scale for a branch or SOHO operation.

### **4. What is Infrastructure?**

An integrated wireless and wireless and wired LAN is called an Infrastructure configuration. Infrastructure is applicable to enterprise scale for wireless access to central database, or wireless application for mobile workers.

### **5. What is BSS ID?**

A specific Ad hoc LAN is called a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSS ID.

### **6. What is WEP?**

WEP is Wired Equivalent Privacy, a data privacy mechanism based on a 40 bit shared key algorithm, as described in the IEEE 802.11 standard.

### **7. Can Wireless products support printer sharing?**

Wireless products perform the same function as LAN products. Therefore, Wireless products can work with Netware, Windows 2000, or other LAN operating systems to support printer or file sharing.

### **8. Would the information be intercepted while transmitting on air?**

WLAN features two-fold protection in security. On the hardware side, as with Direct Sequence Spread Spectrum technology, it has the inherent security feature of scrambling. On the software side, WLAN series offer the encryption function (WEP) to enhance security and Access Control. Users can set it up depending upon their needs.

**9. What is DSSS? What is FHSS? And what are their differences?**

Frequency-hopping spread-spectrum (FHSS) uses a narrowband carrier that changes frequency in a pattern that is known to both transmitter and receiver. Properly synchronized, the net effect is to maintain a single logical channel. To an unintended receiver, FHSS appears to be short-duration impulse noise. Direct-sequence spread-spectrum (DSSS) generates a redundant bit pattern for each bit to be transmitted. This bit pattern is called a chip (or chipping code). The longer the chip is, the greater the probability that the original data can be recovered. Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the radio can recover the original data without the need for retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers.

**10. What is Spread Spectrum?**

Spread Spectrum technology is a wideband radio frequency technique developed by the military for use in reliable, secure, mission-critical communication systems. It is designed to trade off bandwidth efficiency for reliability, integrity, and security. In other words, more bandwidth is consumed than in the case of narrowband transmission, but the trade off produces a signal that is, in effect, louder and thus easier to detect, provided that the receiver knows the parameters of the spread-spectrum signal being broadcast. If a receiver is not tuned to the right frequency, a spread-spectrum signal looks like background noise. There are two main alternatives, Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS).